

What is claimed is:

1. A semiconductor device comprising:
 - a radiating plate;
 - a semiconductor chip bonded onto the radiating plate;
 - 5 a resin wall bonded at the lower end to the radiating plate to surround the circumference of the semiconductor chip;
 - a conductive member extended through the resin wall and retained by the resin wall to electrically conduct the
 - 10 semiconductor chip to the outside; and
 - a resin lid bonded to the upper end of the resin wall, the semiconductor chip being sealed in the space blocked by the radiating plate, the resin wall and the resin lid.
2. A semiconductor device comprising:
 - 15 a conductive member formed by a lead frame;
 - a radiating plate formed of a metal plate different from the lead frame;
 - a semiconductor chip bonded onto the radiating plate;
 - 20 a resin wall bonded at the lower end to the radiating plate, which retains the conductive member and surrounds the circumference of the semiconductor chip; and
 - a resin lid bonded to the upper end of the resin wall, the semiconductor chip being sealed in the space blocked by the radiating plate, the resin wall and the resin lid, and
 - 25 the conductive member electrically conducting the semiconductor chip to the outside.
3. The semiconductor device according to claim 1, wherein the resin wall is fitted to protruding parts or

recessed parts provided on the radiating plate.

4. The semiconductor device according to claim 2,
wherein the resin wall is fitted to protruding parts or
recessed parts provided on the radiating plate.

5 5. The semiconductor device according to claim 1,
wherein the recessed parts are provided on the opposed side
parts of the radiating plate, the protruding parts are
protruded and provided on the inner surfaces of the recessed
parts, and the lower end part of the resin wall is buried in
10 the recessed parts.

6. The semiconductor device according to claim 2,
wherein the recessed parts are provided on the opposed side
parts of the radiating plate, the protruding parts are
protruded and provided on the inner surfaces of the recessed
15 parts, and the lower end part of the resin wall is buried in
the recessed parts.

7. The semiconductor device according to claim 1,
wherein holes are provided in the outside positions of the
resin wall on the conductive member.

20 8. The semiconductor device according to claim 2,
wherein holes are provided in the outside positions of the
resin wall on the conductive member.

9. The semiconductor device according to claim 1,
wherein first holes are provided in the outside positions of
25 the resin wall on the conductive member, and second holes or
cutouts are provided in the region extending through the
resin wall of the conductive member.

10. The semiconductor device according to claim 2,

TOP SECRET - DEFENSE

wherein first holes are provided in the outside positions of the resin wall on the conductive member, and second holes or cutouts are provided in the region extending through the resin wall of the conductive member.

5 11. The semiconductor device according to claim 9,
wherein the first holes are arranged so as to overlap the
space area between the second holes or cutouts when the
conductive member is seen in the resin wall direction from
the outside of the resin wall.

10 12. The semiconductor device according to claim 10,
wherein the first holes are arranged so as to overlap the
space area between the second holes or cutouts when the
conductive member is seen in the resin wall direction from
the outside of the resin wall.

15 13. The semiconductor device according to claim 1,
wherein a stepped part to be fitted to the inner periphery
of the resin wall is provided on the resin lid.

20 14. The semiconductor device according to claim 2,
wherein a stepped part to be fitted to the inner periphery
of the resin wall is provided on the resin lid.

25 15. The semiconductor device according to claim 13,
wherein the resin lid has a vertically plane symmetric shape.

 16. The semiconductor device according to claim 14,
wherein the resin lid has a vertically plane symmetric shape.

 17. The semiconductor device according to claim 1,
wherein the surface of the radiating plate surrounded by the
resin wall is surface-finished by silver plating, and the
other surface of the radiating plate except the part for

bonding the resin wall and the inner lead part and outer lead part of the conductive member are surface finished by gold plating.

18. The semiconductor device according to claim 2,
5 wherein the surface of the radiating plate surrounded by the resin wall is surface-finished by silver plating, and the other surface of the radiating plate except the part for bonding the resin wall and the inner lead part and outer lead part of the conductive member are surface finished by
10 gold plating.

19. A manufacturing method of semiconductor device comprising the steps of:

forming a conductive member by a lead frame;
arranging the lead frame and a radiating plate in a
15 metal mold having a cavity corresponding to a resin wall;
clamping the region of the radiating plate, that region forming the inside of the resin wall, by an upper die and a lower die of the metal mold; and
molding a resin in the metal mold to form the resin
20 wall.

20. A manufacturing method of semiconductor device comprising the steps of:

forming a conductive member by a lead frame;
forming a radiating plate by use of a metal plate
25 different from the lead frame;
arranging the lead frame and the metal plate within a metal mold having a cavity corresponding to a resin wall;
molding a resin in the metal mold to form the resin

TOKUSI SHIZUNO

wall and opening the mold; and

plating the radiating plate and the conductive member.

21. A manufacturing method of semiconductor device
according to claim 20, wherein the plating step comprising
5 the steps of:

electroplating the radiating plate with silver;

electroplating the conductive member with gold; and

electroplating the region of the radiating plate with
gold, the region forming the outside of the resin wall.

10